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(54) Shelf, in particular food supporting shelf for a refrigerator or the like

(57) The proposed food supporting shelf is obtained by moulding melted glass or other material such as a ceramic material or the like with an only press stroke and according to a wished form which may show also a shaped border.

The food supporting shelf (1) may be inserted along side projections (3) which are arranged parallelly to each other in the inside of a refrigerator (2). Otherwise, the shelf may be put on any suitable supports.

The shelf is made of an only material, that is pressed glass or ceramic or the like, by using particular moulds.

The shape of the shelf may be whatever depending on the requirements and needs of employment thanks to the particular technology used to realize it.

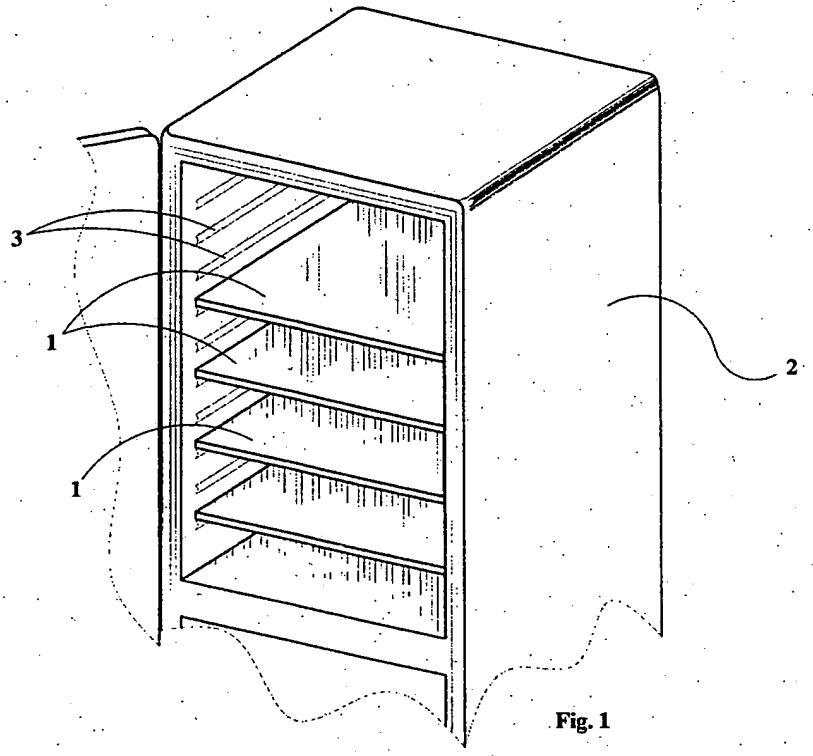

Fig. 1

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Description

[0001] The present industrial invention proposes a shelf such as a food supporting shelf which is conceived and realized to be inserted in a refrigerator or the like.

[0002] It is a new kind of food supporting shelf to be placed within a refrigerator or the like. The peculiarity of this new type of shelf consists in being formed by an only body. The sheet does not need any working or laminating processes, neither is it necessary to apply inserts or to form any plastic lamels.

[0003] More precisely, the shelf according to the present invention is obtained by moulding melted glass or other material such as a ceramic material or the like with an only press stroke and according to a wished form which may show also a shaped border. In this way, advantages are reached in many respects.

[0004] As is known, the refrigerators for a domestic use comprise a thermoinsulated box within which a series of parallel projections are arranged at different levels. The food supporting shelves are inserted in such projections, otherwise they are placed on them.

[0005] The purpose of the projections is to bear or support a series of horizontal food'supporting shelves at different levels within the refrigerator compartment.

[0006] In addition, it is known that there are several systems to be used to realize horizontal food supporting shelves for supporting the foodstuffs to be kept in the refrigerator, the systems being chosen depending on the result to be achieved.

[0007] There are grilled shelves which consist of parallel metal round elements. These round elements are included in an essentially rectangular frame and are covered with a plastic coating or with a coating made of another proper material.

[0008] Besides such grilled shelves, it is possible to employ glass shelves or shelves made of a vitreous material or the like or Plexiglas shelves or plastic shelves.

[0009] The vitreous shelves are made by using a technique according to which from a flat sheet of glass it is possible to cut food supporting sheets of the wished size.

[0010] Then, the so-obtained sheets are subjected to a tempering process. Finally, suitable borders in plastic or the like are applied by overprint along the four sides of each sheet.

[0011] Fig. 5 shows such a sheet, made according to the known art, in which the reference A denotes a tempered glass shelf while the reference B denotes the overprinted plastic border.

[0012] The application of the borders along the sides of the flat tempered glass may be accomplished by using several techniques which have been developed over the years.

[0013] However, the employment of these tempered glass sheets, which are widespread today, has met some practical disadvantages owing to the presence of the sheet border.

[0014] In fact, many liquid or solid residues fall from the containers placed on the shelf, reach the border and penetrate into it so that with the passing of time their stagnation causes the well-known inconveniences of a refrigerator, namely, stinking emanations due to the accumulation of organic waste in the splits and interstices of the refrigerator.

[0015] In addition, the known sheets forming the shelves of a refrigerator are limited as concerns the manufacture because they are produced according to working phases consisting in the production of the sheet of glass, the cutting of the same according to the required size, the tempering and the subsequent overprinting of the border with a suitable plastic material.

[0016] To do so, it is necessary to employ fit machines, which often are very expensive and difficult to run. These machines need to be constantly controlled by the operators in all the operative phases. All these facts weigh on the cost of the finished product.

[0017] According to the main object of the present invention, a novel shelf has been conceived and carried out, in particular for refrigerators or cupboards or other similar uses. The peculiarity of this shelf is to be produced in an only piece because the tempering of the sheet and the overprinting are no more necessary to realize the above-described finishing borders.

[0018] This newly conceived shelf for refrigerators or the like is therefore advantageous because the laborious constructive passages for the production of the known sheets are avoided.

[0019] A second advantage of the present invention, which is as much important as the first one, consists in the fact that the new shelf is realized as a sole piece and is completely deprived of any perimetrical applications or borders or whatever additions to the sheet.

[0020] In such a way, it is avoided the presence of cavities or seats in which residues of food could fall from the containers placed on the shelf.

[0021] Further advantages of this invention derive from the possibility of realizing shelves of any shapes by employing an only material to be completely recycled so that it is possible to avoid the energy costs which were necessary for the sheet cutting, subsequent tempering and finishing, and overprinting of the plastic.

[0022] All the above described aims and advantages are reached according to the present invention with a shelf, in particular a food supporting shelf for a refrigerator or the like, characterized by the fact of being realized as an only body by moulding vitreous or ceramic material or the like in an essentially flat shape which may show borders, slots and/or projections or hollows of various kind according to the need.

[0023] The invention will be better understood from the following description, given as a non-exclusive example, with reference to the accompanying drawings wherein:

- Figure 1 shows a schematic view of a refrigerator

on the whole, provided with shelves according to the invention, these shelves being realized as only bodies by moulding vitreous and/or ceramic material;

- Figure 2 shows a schematic perspective view of a detail of a shelf according to the invention;
- Figure 3 shows a schematic perspective view of a shelf according to the invention, realized in an essentially flat version;
- Figure 4 shows a schematic perspective view of a shelf according to the invention, realized according to the flat version, provided with a bottom border to prevent the foodstuffs to come into contact with the cooling plate of the refrigerator;
- Figure 5 shows a schematic perspective view of a shelf realized according to the known art and provided with a perimetrical border obtained by overprinting of plastic material.

[0024] With reference to the accompanying drawings, number 1 denotes a food supporting shelf for a refrigerator 2, preferably but not exclusively for a domestic use, realized according to the teaching of the invention.

[0025] The food supporting shelf 1 is inserted on side projections 3 which are usually arranged parallelly within the compartment of the refrigerator 2. Anyway, the shelf in question can be put on whatever type of support.

[0026] The shelf 1 is made of an only material, that is pressed glass or ceramic or the like by employing suitable moulds.

[0027] Unlike the prior solutions providing, as said, the lamination and tempering of the sheet of glass and the overprinting of borders or the like in plastic material, a plate according to the present invention is obtained with an only stroke of the press, the material to be used being the melted glass or other similar suitable material such as a doughy raw material.

[0028] Of course, the shape of the shelf may be whatever thanks to the used technology so that it is possible to satisfy any requirements.

[0029] The obtention of a sheet with any only stroke of the print press permits to obtain shelves of any forms, either smooth surfaces or surfaces provided with borders, grooves or any other elements which should be necessary for the employment.

[0030] For instance, the sheet can show a back border 4 as represented in Fig. 4, which is to avoid the contact between the food to be refrigerated and the wall of the evaporator. Otherwise, the sheet can show a toroidal border or a protrusive border or it can show other shapes or elements integral with the shelf which is realized as an only piece.

[0031] Moreover, it is possible to realize sheets with bevels or cavities or other similar measures to permit a better circulation of the air and a consequent saving of energy in the running of the refrigerator, also this type of sheet being realized as an only piece by pressing it.

[0032] The advantages of the present solution include the following ones: a recycling of the vitreous or ceramic material or the like, which is completely deprived of any plastic elements or the like; a certain saving of energy because the costs for the pressing of the plastic, the cutting of the sheet and the subsequent tempering of the sheet itself are avoided.

[0033] In addition, should the present food supporting shelf crack, it would not produce any pieces of broken glass. On the contrary, should the sheets used today crack, they would produce many small pieces of glass which would fall on the food itself and it would be impossible to recover the foodstuffs unless they had been perfectly sealed or protected by suitable wrappers.

[0034] As said, the shelf according to the present invention does not show any discontinuity and is perfetly washable also in a dishwasher. On the contrary, the known sheets show a discontinuity on the whole plastic covering and in case of spill of alimentary liquids, there is the formation of a deposit which is difficult to remove. Besides, this deposit ferments and gives rise to noxious germs in a short time.

[0035] Finally, the present solution is especially advantageous as regards ecology. In fact, there is no type of emission for the shelves are entirely realized in a vitreous and/or ceramic material, In other words, it is avoided any dispersion of particles or any emission of hydrocarbon electrons as it occurred in the known solutions.

[0036] A technician of this field can make some changes and variants in the invention which has been described and shown as a non-limiting example.

[0037] In this way, the technician can obtain solutions which are to be considered as included in the scope of protection of the invention as defined by the following claims.

Claims

1. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like, characterized by the fact of being realized as an only body by moulding vitreous or ceramic material or the like in an essentially flat shape which may show borders, slots and/or projections or hollows of various kind according to the need.

2. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like as claimed in the foregoing claim, characterized by the fact of being obtained as an only body by using an only material, that is pressed glass or ceramic or the like, and by employing suitable moulds.

3. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like as claimed in the foregoing claims, characterized by the fact of showing a shape permitting it to be inserted along side pro-

jections (3) arranged parallelly to each other in the inside of a refrigerator or other similar compartments, or permitting the shelf to be put on other kind of supports.

4. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like as claimed in the foregoing claims, characterized by the fact of being obtained by moulding melted glass or other similar suitable material such as a doughy raw material with an only press stroke.

5. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like as claimed in the foregoing claims, characterized by the fact that in the pressing phase of the sheet it is possible to obtain openings and/or bevels or cavities, also in the border, to permit circulation of the air and a consequent saving of energy in the running of the refrigerator.

6. A shelf (1), in particular a food supporting shelf for a refrigerator (2) or the like as claimed in the foregoing claims, characterized by the fact that since it is possible to realize sheets in any shape with an only pressing, it is also possible to obtain a one-piece sheet showing a back border (4) to prevent the product to be refrigerated from coming in touch with the evaporator wall, or a one-piece sheet showing a toroidal border or a relief or whatever elements and shapes, such elements being always obtained integral with the sheet itself.

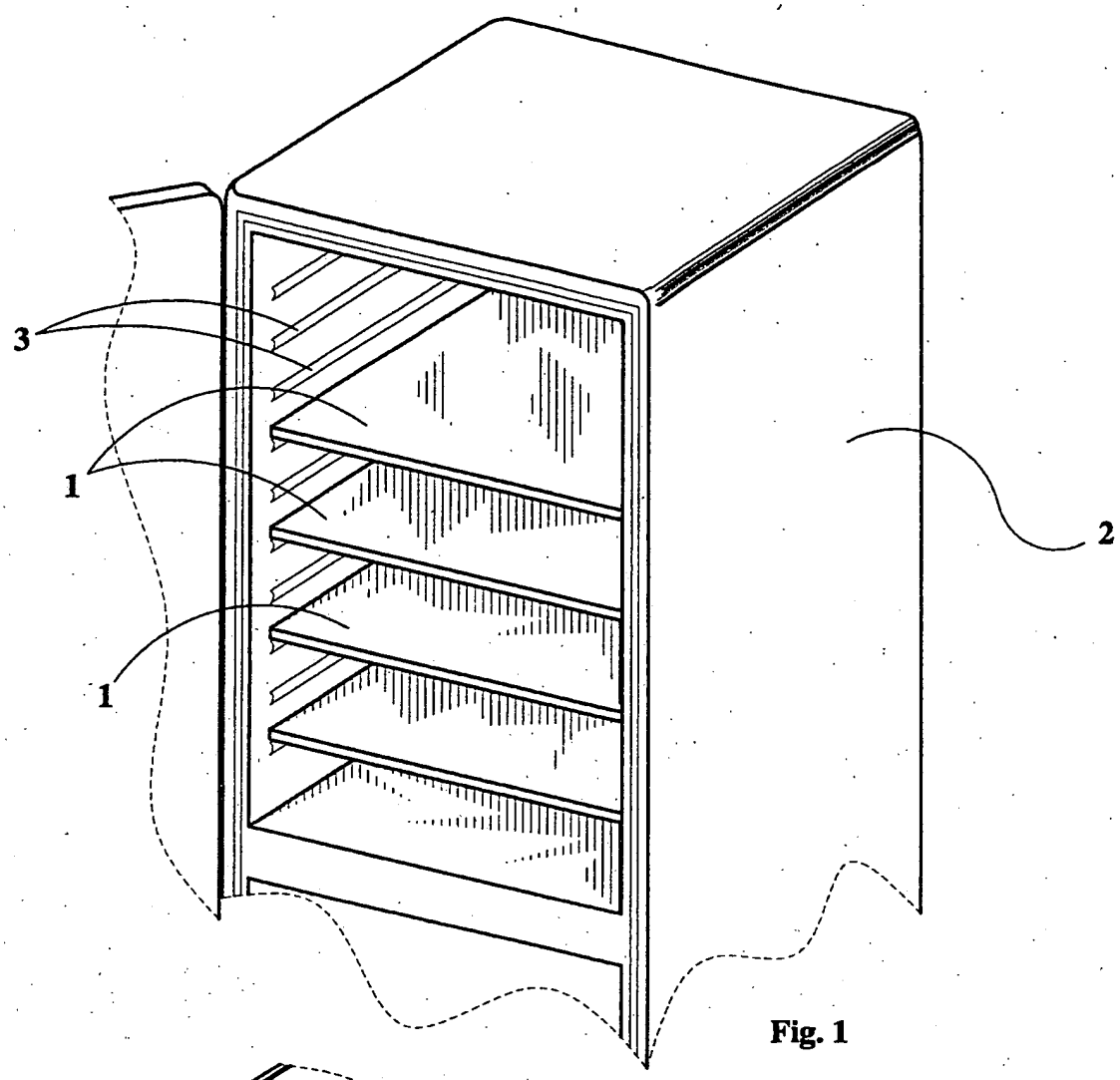

Fig. 1

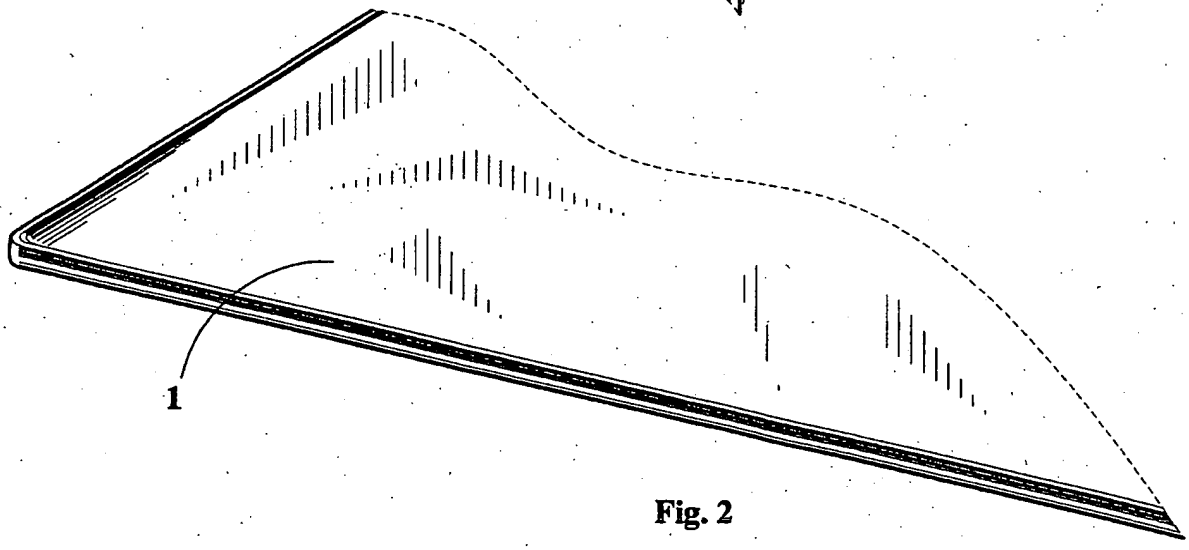

Fig. 2

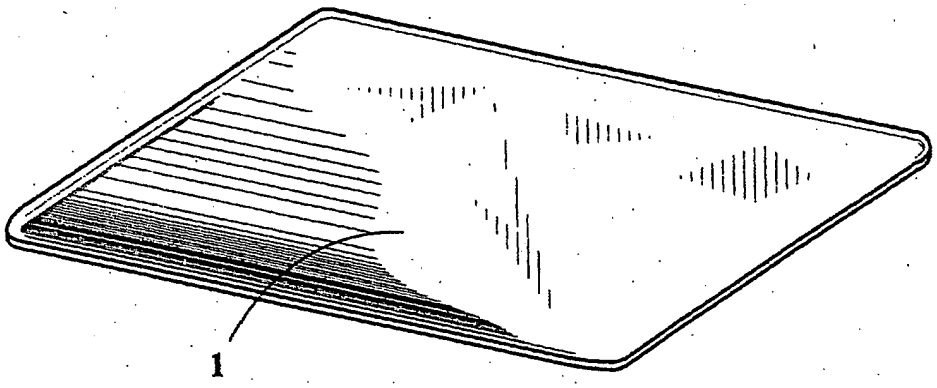

Fig. 3

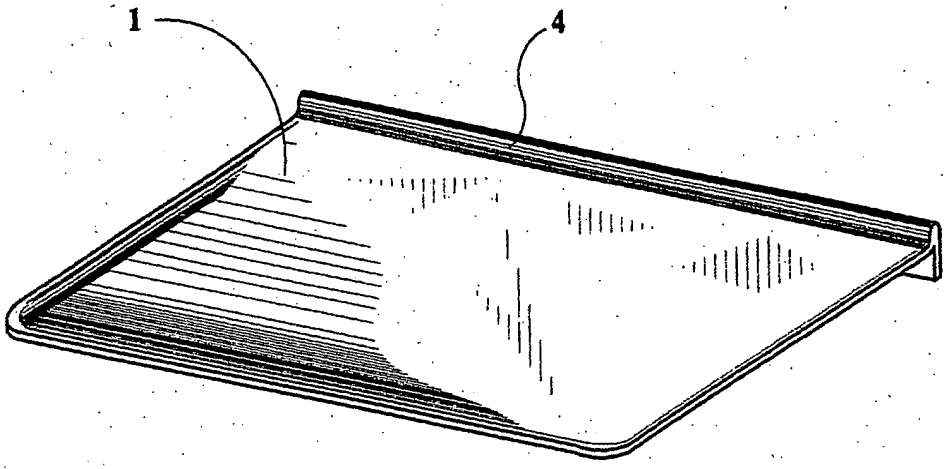

Fig. 4

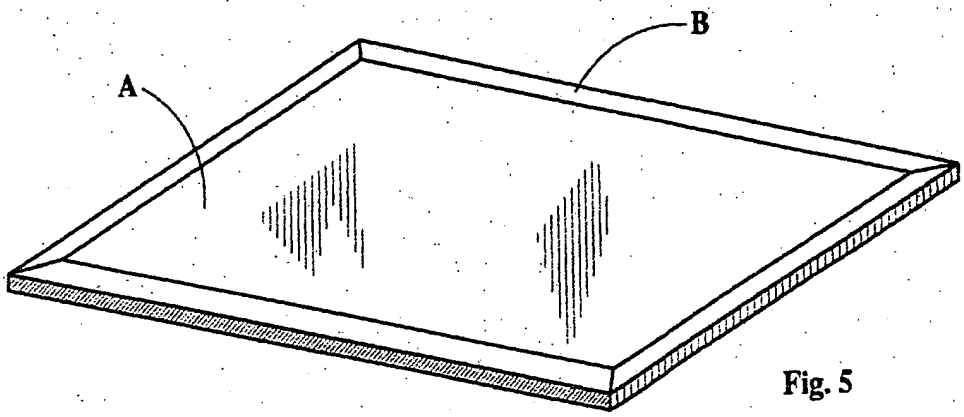

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 00 12 0974

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 424 694 A (LICENTIA GMBH) 2 May 1991 (1991-05-02) * claims 1,2; figures 1,2 * * column 2, last paragraph - column 3, paragraph 1 *	1-6	F25D25/02 A47B96/02
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

F25D
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 February 2001	Jones, C

CATEGORY OF CITED DOCUMENTS

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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